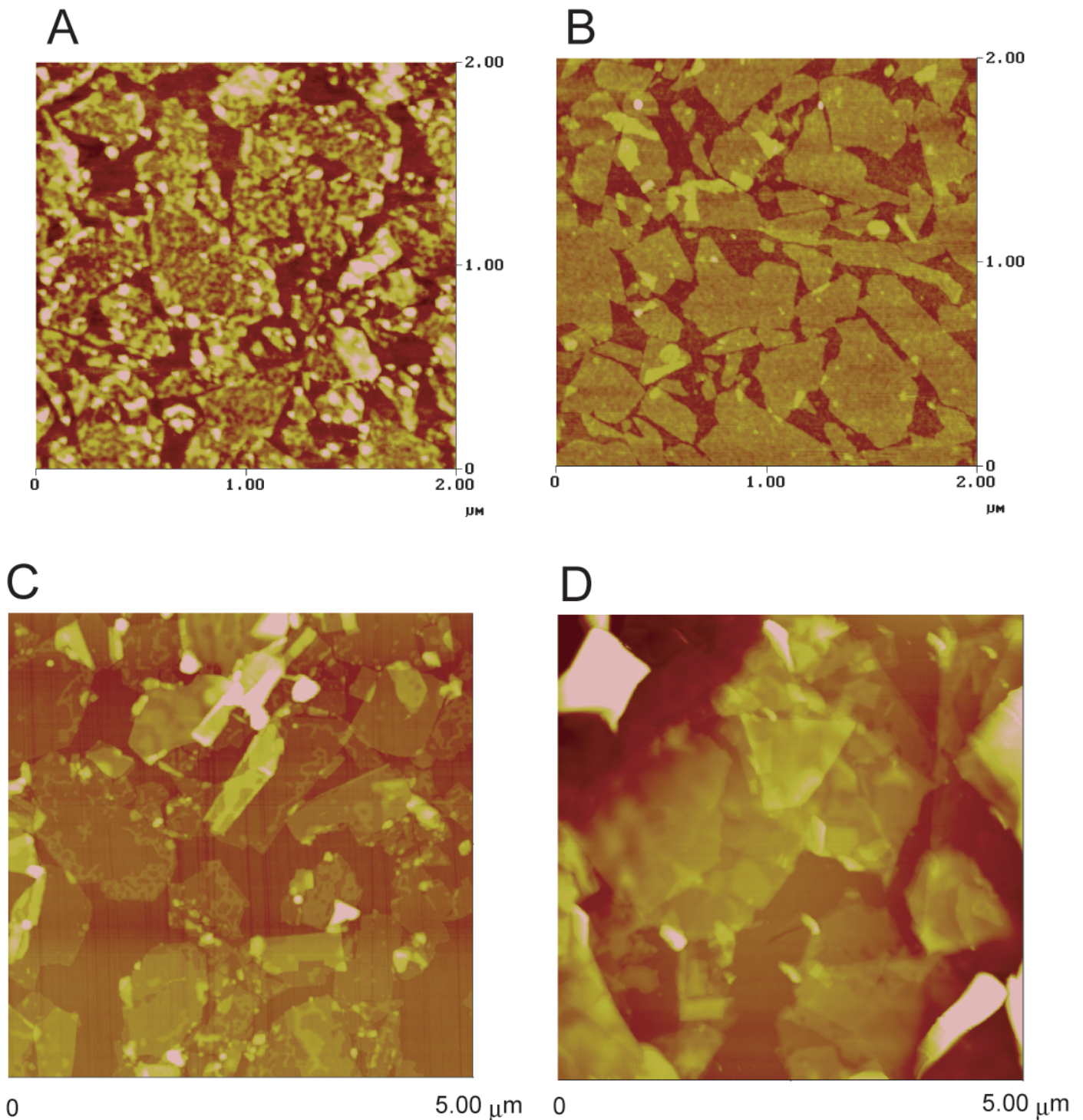


# Supporting data 1

## AFM images



(A) AFM image of a clay/ODAH<sup>+</sup> LB film shows a nanostructure that was ascribed to the self-aggregated domains of adsorbed ODAH<sup>+</sup> cations. Such structures in AFM images were by no means an artifact. (B) The same film when it was immersed and rinsed by methanol, the microstructure disappeared from the image, indicating that the organic parts were eliminated. (C) AFM image of a monolayer of niobate/ODAH<sup>+</sup> LB film before the photo-modification. The similar domain structures were also seen in the present film already before the photo-modification. (D) AFM image of a 10-layered LB film after the photo-modification for 4.5 hours. The self-aggregated microdomains disappeared and most of the surface seemed flat.